

REMARKS

This request for reconsideration is made in response to an Office Action dated May 21, 2003 in which the following rejections were made:

Claims 10 and 20-22 were objected to for minor informalities.

Claims 1-2, 4-5, 9, 13-16 and 18 were rejected under 35 U.S.C. 102(a) as being anticipated by Hevenor et al (U.S. Patent 6,138,885).

Claim 25 was rejected under 35 U.S.C. 102(b) as being anticipated by Koiwa (JP 6 311 2816 A).

Claim 3 was rejected under 35 U.S.C. 103(a) as being anticipated over Hevenor et al. (U.S. Patent 6,138,885) in view of Hevenor (U.S. Patent No. 5,875,949).

Claims 10, 19-21 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hevenor '885 in view of Koiwa.

Claim 11 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hevenor '885 in view of Koiwa as applied to claims 1 and 10 above, and further in view of Mulay (U.S. Patent No. 6,398,333 B1).

Applicants have amended claim 10 to address Examiner's objection. Additionally, a blank line has been inserted between claims 21 and 22, per Examiner's request.

Claims 1-2, 4-5, 9, 13-16 and 18 were rejected under 35 U.S.C. 102(a) as being anticipated by Hevenor '885. Applicants respectfully traverse Examiner's rejection. Independent claim 1 recites a method of aligning a sheet material disposed upon a worksurface for enhancing printing or other operations on the sheet material, comprising the steps of placing the sheet material over the worksurface; determining the alignment of the sheet material in a coordinate system having first and second axes for specifying locations relative to the worksurface and the sheet material overlaying the worksurface; and differentially driving spaced portions of the sheet

material for moving the sheet material for providing a selected alignment of the sheet material.

In contrast to recitation of claim 1, the Hevenor '885 reference does not show or disclose a method of aligning sheet material by determining the alignment of the sheet material in a coordinate system having first and second axis for specifying locations relative to the worksurface and the sheet material overlaying the worksurface and differentially driving spaced portions of the sheet material for moving the sheet material for providing a selected alignment of the sheet material. In contrast to recitation of claim 1, the Hevenor '885 reference teaches that optical sensors read the hash marks 86 in lateral edge portions of the sheet material (col. 7, lines 54 – 58). When the optical sensors record the passage of the hash marks, a signal is sent to the controller where the event is registered. As the web is continually fed, the sensors record the passage of the hash marks, sending a signal to the controller 38. The controller counts the number of hash marks recorded by the sensors. If the controller registers or counts hash marks in equal time period, then the controller determines that the web is aligned. However, if once sensor requires a longer period of time to record the passage of the hash marks, than the other sensor, the the controller determines that the web is skewed (col. 7, lines 54 – col. 8, line 17). Furthermore, the Hevenor '885 discloses that the pinch wheel 43 can be translated back and forth across the portion of the width of the web (col. 5, lines 40-45). However, the Hevenor '885 reference does not show or disclose determining the alignment of the sheet and differentially driving spaced portions of the sheet material, as recited in claim 1 of the present invention. Therefore, rejection of claim 1 under 35 U.S.C. 102(a) over Hevenor '885 is not proper and should be withdrawn and claim 1 passed to issue.

Claims 2, 4, 5, 9, and 13-15 depend from claim 1 and include additional recitations thereto. Therefore, for at least the reasons discussed above, claims 2, 4, 5, 9, 13-15 are not anticipated by the Hevenor '885 reference. For example, claim 5 depends from claim 1 and additionally recites that the step of determining the alignment includes determining the distance of a selected locations on an edge of the sheet material from a selected location in a coordinate system, and wherein the step

of differentially driving spaced portions of the sheet material includes differentially driving spaced portions that the selected location on the edge of the sheet material is within the selected distance of the selected in the coordinate system. The steps recited in claim 5 are not shown or disclosed in the Hevenor '885 reference.

Regarding claim 13, claim 13 also depends from claim 1 and additionally recites that the step of determining alignment of the sheet material includes providing a sensor mounted with the worksurface and including an array of pixels extending in the direction of one of the axes; providing a light source for illuminating the sensor; sensing a first location in the direction of the one of the axes of the edge of the sheet material with the sensor; translating the sheet material a known distance along the other of the axes; sensing a second location in the direction of the one of the axes of the edge of the sheet material with the sensor; and determining the skew of the sheet material from the difference between the first and second locations of the edge and the known translation distance. The Hevenor '885 reference does not disclose or show translating the sheet material a known distance along an axis, sensing a second location of the edge of the sheet material and determining the skew of the sheet material from the difference between the first and second locations. Therefore, claim 13 is also not anticipated by the Hevenor '885 reference.

Regarding claim 14, claim 14 depends from claim 1 and additionally recites the steps of determining the residual skew of the sheet material; and translating the sheet material for printing thereon, the step of translating including steering the material so as to maintain the residual skew of the sheet material. In contrast to recitation of claim 14, the Hevenor '885 reference does not show or disclose determining the residual skew of the sheet material and translating the sheet material so as to maintain the residual skew of the sheet material.

Therefore, rejection of claims 2, 4, 5, 9, 13-15 under 35 U.S.C. 102(a) should be withdrawn and claims 2, 4, 5, 9, 13-15 be passed to issue.

Regarding claim 16, independent claim 16 recites an apparatus for supporting a sheet material on a worksurface with a selected alignment and for performing work operations on the sheet material responsive to a controller, comprising a

workbed providing the worksurface for supporting the sheet material, the worksurface containing a workhead axis and a sheet material translation axis perpendicular to the workhead axis; a workhead for performing the work operation upon the sheet material, said workhead being translatable parallel to the work axis for printing on the sheet material; means for securing the sheet material to the worksurface when working of the sheet material and for releasing the sheet material from the worksurface when translating the sheet material; sensing means for sensing an edge of the sheet material; and sheet material translation means for translating the sheet material in the direction of the sheet material translation axis, said sheet material translation means including means for differentially driving space portions of the sheet material, responsive to said sensing means, for providing a selected alignment of the sheet material relative to the worksurface.

In contrast to recitation of claim 16 of the present invention the Hevenor '885 reference does not show or disclose an apparatus recited in claim 16. For example, the Hevenor '885 reference does not show or disclose sensing means for sensing an edge of the sheet material. Rather, the Hevenor reference discloses sensing means for sensing hash marks. Furthermore, the Hevenor reference does not show or disclose means for differentially driving space portions of the sheet material. Rather, the Hevenor '885 reference discloses a pinch wheel 43 which can be incrementally translated back and forth. Therefore, the Hevenor reference does not anticipate claim 16 of the present invention.

Claim 18 depends from claim 16 and includes additional recitations thereto. Therefore, for at least reasons discussed above, claim 18 is not anticipated by the cited reference. Thus, rejection of claims 16 and 18 under 35 U.S.C. 102(a) should be withdrawn and claims 16 and 18 passed to issue.

Claim 25 was rejected under 35 U.S.C.102(b) as being anticipated by Koiwa. Applicants have canceled claim 25 and, therefore, this rejection is moot.

Claim 3 was rejected under 35 U.S.C. 103 as being unpatentable over Hevenor '885 over Hevenor '949. Applicants respectfully traverse Examiner's rejection.

Claim 3 depends from independent claim 1 and includes additional recitations thereto. As discussed above, the Hevenor '885 reference does not anticipate claim 1 of the present invention. Therefore, for at least the reasons discussed above, the Hevenor '885 reference does not anticipate or render obvious claim 3 also. Since the Hevenor '949 reference was cited for the step of placing the sheet material over a cylindrical worksurface, the Hevenor '949 reference does not cure deficiencies of disclosure of the Hevenor '885 reference. Therefore, rejection of claim 3 under 35 U.S.C. 103 should be withdrawn and claim 3 passed to issue.

Claims 10, 19-21 and 24 were rejected under 35 U.S.C. 103 as being unpatentable over Hevenor '885 in view of Koiwa '186. Applicants respectfully traverse this rejection. Claim 10 depends from claim 1 and additionally recites steps of providing a sensor translatable along one of the axes; translating the sensor across the edge of the sheet material and sensing a first location of the edge; translating the sheet material a known distance along the other of the axes; translating the sensor across the edge of the sheet material and sensing a second location of the edge of the sheet; and determining the skew of the sheet material from the difference between the first and second locations of the edge and the known translation distance.

In contrast to recitation of claim 10, the Hevenor '885 reference does not teach the steps recited in claim 10. More specifically, the Hevenor reference does not teach or suggest translating sheet material at known distance, sensing a first and second location of the edge of the sheet and determining the skew from the difference between the first and second location of the edge and the known translation distance. Therefore, Hevenor does not render claim 10 of the present invention obvious. Koiwa does not add to the teachings of the Hevenor '885 reference. Therefore, rejection of claim 10 under 35 U.S.C. 103 should be withdrawn and claim 10 passed to issue.

Independent claim 20 recites an apparatus for supporting a sheet material on a worksurface with a selected alignment for performing work operations on the sheet material, comprising a workbed for providing the worksurface for supporting

the sheet material, said worksurface containing a work axis and sheet material translation axis perpendicular to the work axis; sheet material translation means for translating the sheet material in the direction of the sheet material translation axis; a workhead for performing the work operations upon the sheet material, the workhead being translatable parallel to the work axis; means for securing the sheet material to the worksurface when printing on the sheet material and releasing the sheet material from the worksurface when translating the sheet material; an edge sensor for sensing an edge of the sheet material, said sensor mounted with the workhead for translation therewith in the direction of the work axis; a controller in communication with said workhead, said sheet material translation means and said edge sensor for controlling the work operation on the sheet material responsive to data stored in a memory, and wherein said controller includes programming, stored in a memory associated therewith, for determining the alignment of the sheet material, said programming including instructions for the following: translating the workhead in the direction of the work axis and past the edge of the sheet; receiving a first communication from the edge sensor responsive to the location of the edge of the sheet material in the direction of the work axis; energizing the sheet material translation means for translating the sheet material a known distance in the direction of the sheet material translation axis; translating the workhead in the direction of the work axis and past the edge of the sheet; receiving a second communication from the edge sensor responsive to the location of the edge of the sheet material in the direction of the work axis; and determining the skew of the sheet material responsive to said first and second communications and said known translation distance.

In contrast to teachings of the Hevenor '885 reference, claim 20 specifically recites sheet material translation means, means for securing the sheets to the worksurface, an edge sensor, a controller and instructions that specifically implement an alignment scheme disclosed by the present invention. Although the Hevenor reference also teaches an alignment scheme, the alignment scheme recited in claim 20 of the present invention is not taught or even suggested by the Hevenor '885 reference. More specifically, claim 20 recites receiving a first communication

from the edge sensor responsive to the location of the edge of the sheet material, energizing the sheet material translation means for translating the sheet material known distance, translating the workhead in the direction of the work axis and passed the edge of the sheet, receiving a second communication from the edge sensor responsive to the location of the edge of the sheet material and determining skew of the sheet material responsive to the first and second communications and known translation distance. Since the Hevenor '885 reference does not teach or suggest what claim 20 of the present invention recites, Hevenor '885 does not render claim 20 obvious.

The Koiwa reference does not add to the deficiencies of the Hevenor teachings. More specifically, the Koiwa does not teach or even suggest an apparatus capable of aligning a sheet material as recited in claim 20. Therefore, rejection of claim 20 under 35 U.S.C. 103 should be withdrawn and claim 20 passed to issue.

Claims 21 and 24 depend from claim 20 and include additional recitations thereto. Therefore, rejection of claims 21 and 24 under 35 U.S.C. 103 should be withdrawn and claims 21-24 passed to issue.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hevenor '885 in view of Koiwa as applied to claims 1 and 10 and further in view of Mulay. Claim 11 depends from claim 10 and claim 1 and includes additional recitations thereto. More specifically, claim 11 recites an optical sensor for transmitting a beam and receiving light from the reflection of the transmitted beam. As discussed above, the Hevenor '885 reference does not render claims 1 and 10 obvious. The Koiwa and the Mulay reference do not add to the deficiencies in teaching of the Hevenor reference. Therefore, rejection of claim 11 under 35 U.S.C. 103 should be withdrawn and claim 11 passed to issue.

As Applicants hereby addressed every objection and rejection raised by the Examiner, it is respectfully requested that Examiner reconsider rejection of claims 1-11, 13-16, 18-21 and 24-25 and pass claims 1-24 to issue. Applicants gratefully acknowledge notification of allowability for claims 6-8, 12, 17 and 22-23.

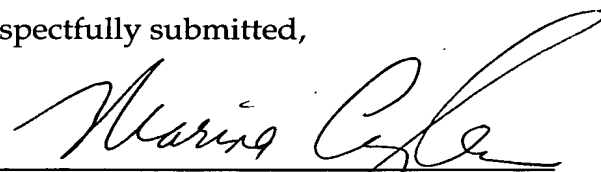
Applicants hereby petition for a two-month extension of time in order to file this Response on the above-identified application. The fee of \$420.00 required under 37 CFR 1.17(a) is enclosed.

If any additional extension of time for the accompanying response is required, applicant requests that this paper be considered a petition therefor.

The Commissioner is authorized to charge any fees under 37 CFR 1.17(a) to (d), which may be required to Deposit Account No. 13-0235.

Respectfully submitted,

By



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